REMARKS/ARGUMENTS

Overview of the Office Action

The title of the invention was objected to by the Examiner.

Claims 1, 4, 8, 11, 14, 15, 19, and 20 have been rejected by the Examiner under 35

U.S.C. § 102(b) as being anticipated by Yu (U.S. Patent No. 5,764,903).

Claims 2, 3, 5-7, 9, 10, 12, 13, and 16-18 have been rejected by the Examiner under 35

U.S.C. § 103(a) as unpatentable over Yu in view of Day III et al. (U.S. Patent No. 6,185,580).

Specification and Title

The Title of the present Application was objected to by the Examiner. In response,

Applicants have replaced the title with a new title that is indicative of the invention to which the

claims are directed.

The Specification of the present Application has been amended to correct the inadvertent

transposition of two key terms. Applicants respectfully submit that no new matter has been

added.

Claims Rejected Under 35 U.S.C. § 102(b)

Claims 1, 4, 8, 11, 14, 15, 19, and 20 have been rejected by the Examiner under 35

U.S.C. § 102(b) as being anticipated by Yu (U.S. Patent No. 5,764,903). However, in response,

Applicants respectfully disagree with the Examiner's conclusions and submit that the invention

of Yu does not include each and every claim element present in Claims 1, 4, 8, 11, 14, 15, 19,

and 20 of the present Application.

The invention of Yu is directed to "methods for mirroring hard disk data of a primary

server over a network to a secondary server" wherein "[a] virtual disk driver is provided between

the operating system and the hard disk driver of the primary server" such that "[a]fter the virtual

disk driver receives a disk write request that should be mirrored, the virtual disk driver first sends

a disk write request to the secondary server" and "[t]he virtual disk driver then sends the disk

write request to a disk drive on the primary server" (Yu, Abstract, lines 1-9). However, nowhere

does Yu teach a virtual disk drive of an "emulated computer system" as explicitly set forth in

independent Claims 1, 4, 8, 11, 14, 15, and 19 of the present Application.

The specification of the present Application (as amended earlier herein) describes an

"emulated computer system" as follows:

> A computer manufacturer will attempt to maximize its market share by
> having more rather than fewer applications run on the microprocessor family
> associated with the computer manufacturer's product line. To expand the number
> of operating systems and application programs that can run on a computer system,
> a field of technology has developed in which a given computer having one type of
> CPU, called a host, will include an emulator program that allows the host
> computer to emulate the instructions of an unrelated type of CPU, called a guest.
> Thus, the host computer will execute an application that will cause one or more
> host instructions to be called in response to a given guest instruction. Thus, the
> host computer can both run software designed for its own hardware architecture
> and software written for computers having an unrelated hardware architecture. As
> a more specific example, a computer system manufactured by Apple Computer,
> for example, may run operating systems and program written for PC-based
> computer systems. It may also be possible to use an emulator program to operate
> concurrently on a single CPU multiple incompatible operating systems. In this
> arrangement, although each operating system is incompatible with the other, an

emulator program can host one of the two operating systems, allowing the otherwise incompatible operating systems to run concurrently on the same computer system.

When a guest computer system is emulated on a host computer system, the guest computer system is said to be a virtual machine, as the guest computer system exists only as a software representation of the operation of the hardware architecture in the host computer system. **The terms emulator and virtual machine are sometimes used interchangeably to denote the ability to mimic or emulate the hardware architecture of an entire computer system.** As an example, the Virtual PC software created by Connectix Corporation of San Mateo, California emulates an entire computer that includes an Intel 80X86 Pentium processor and various motherboard components and cards. The operation of these components is emulated in the virtual machine that is being run on the host machine. An emulator program executing on the operating system software and hardware architecture of the host computer, such as a computer system having a PowerPC processor, mimics the operation of the entire guest computer system. The emulator program acts as the interchange between the hardware architecture of the host machine and the instructions transmitted by the software running within the emulated environment.

(Specification, page 2, line 13 through page 3, line 14) (emphasis added).

Based on the foregoing, an emulated computer system (a.k.a., a "virtual machine") "emulate[s] the hardware architecture of an entire computer system" (Specification, page 3, line 5). In this context, it is not a virtual hard drive that emulates a computer system as suggested by the Examiner (e.g., "Yu discloses...a virtual hard drive for emulating a computer system running on a host computer system," Office Action, page 2, section 4, second paragraph, lines 1-2), but instead a virtual hard drive is the "virtual" storage device provided for an emulated computer system, that is, a "virtual" machine.

In order to anticipate a claimed invention, a prior art reference must teach or suggest each and every element present in the claim. Yu does not teach or suggest an emulated computer system as that term is defined and used in the present Application. Therefore, based on the foregoing analysis, the Applicants respectfully submit that Yu fails to teach all the claim elements necessary to anticipate the present invention of independent Claims 1, 4, 8, 11, 14, 15, and 19 under 35 U.S.C. § 102(b). Applicants therefore respectfully request that these rejections be withdrawn and that Claims 1, 4, 8, 11, 14, 15, and 19 be allowed to issue. Moreover, Applicants further request that Claim 20, which depends on independent Claim 19, also be allowed to issue as a claim that depends upon an allowable claim.

Claims Rejected Under 35 U.S.C. § 103(a)

Claims 2, 3, 5-7, 9, 10, 12, 13, and 16-18 have been rejected by the Examiner under 35 U.S.C. § 103(a) as unpatentable over Yu in view of Day III et al. (U.S. Patent No. 6,185,580).

In order to establish a prima facie case of obviousness, three basic criteria must be met. First there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second there must be a reasonable expectation of success. Finally the prior art reference (or references when combined) must teach or suggest all the claim elements. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and cannot be based on applicant's disclosure. (MPEP §§ 2142, 2143.)

In regard to the third criteria (that the prior art references or combination of references must teach or suggest all the claim elements), Applicants respectfully submit that nowhere does

Yu and Day, separately or in combination, teach or suggest a virtual disk drive of an "emulated

computer system" as explicitly set forth in independent Claims 1, 4, 8, 11, and 15 of the present

Application upon which Claims 2, 3, 5-7, 9, 10, 12, 13, and 16-18 depend.

As previously discussed earlier herein, the invention of Yu is directed to "methods for

mirroring hard disk data of a primary server over a network to a secondary server" wherein "[a]

virtual disk driver is provided between the operating system and the hard disk driver of the

primary server" such that "[a]fter the virtual disk driver receives a disk write request that should

be mirrored, the virtual disk driver first sends a disk write request to the secondary server" and

"[t]he virtual disk driver then sends the disk write request to a disk drive on the primary server"

(Yu, Abstract, lines 1-9). The invention of Day, on the other hand, is directed to a "file

translation system and a physical information and extensions file for an intermediary controller"

wherein "[t]he file translation system [allows] a host computer to directly access data from a

different host type without moving the actual data" (Day, Abstract, lines 1-5). However, neither

of these references teach or suggest an emulated computer system as that term is used in the

present Application.

The present Application which describes an "emulated computer system" as follows:

> A computer manufacturer will attempt to maximize its market share by
> having more rather than fewer applications run on the microprocessor family
> associated with the computer manufacturer's product line. To expand the number
> of operating systems and application programs that can run on a computer system,
> a field of technology has developed in which a given computer having one type of
> CPU, called a host, will include an emulator program that allows the host
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> Thus, the host computer will execute an application that will cause one or more

host instructions to be called in response to a given guest instruction. Thus, the host computer can both run software designed for its own hardware architecture and software written for computers having an unrelated hardware architecture. As a more specific example, a computer system manufactured by Apple Computer, for example, may run operating systems and program written for PC-based computer systems. It may also be possible to use an emulator program to operate concurrently on a single CPU multiple incompatible operating systems. In this arrangement, although each operating system is incompatible with the other, an emulator program can host one of the two operating systems, allowing the otherwise incompatible operating systems to run concurrently on the same computer system.

When a guest computer system is emulated on a host computer system, the guest computer system is said to be a virtual machine, as the guest computer system exists only as a software representation of the operation of the hardware architecture in the host computer system. **The terms emulator and virtual machine are sometimes used interchangeably to denote the ability to mimic or emulate the hardware architecture of an entire computer system.** As an example, the Virtual PC software created by Connectix Corporation of San Mateo, California emulates an entire computer that includes an Intel 80X86 Pentium processor and various motherboard components and cards. The operation of these components is emulated in the virtual machine that is being run on the host machine. An emulator program executing on the operating system software and hardware architecture of the host computer, such as a computer system having a PowerPC processor, mimics the operation of the entire guest computer system. The emulator program acts as the interchange between the hardware architecture of the host machine and the instructions transmitted by the software running within the emulated environment.

(Specification, page 2, line 13 through page 3, line 14) (emphasis added).

Based on the foregoing, an emulated computer system (a.k.a., a "virtual machine")

"emulate[s] the hardware architecture of an entire computer system" (Specification, page 3, line

5). In this context, it is not a virtual hard drive that emulates a computer system as suggested by

the Examiner in regard to Yu (e.g., "Yu discloses...a virtual hard drive for emulating a computer

system running on a host computer system," Office Action, page 2, section 4, second paragraph,

lines 1-2), but instead a virtual hard drive is the "virtual" storage device provided for an

emulated computer system, that is, a "virtual" machine.

Neither Yu nor Day, separately or in combination, teach or suggest an emulated computer

system or inventions pertaining to same. Therefore, based on the foregoing analysis, the

Applicants respectfully submit that Yu and Day, alone and in combination, fail to teach all the

claim elements necessary to render independent Claims 1, 4, 8, 11, and 15 obvious under 35

U.S.C. § 102(b). Therefore, in light of the fact that Claims 2, 3, 5-7, 9, 10, 12, 13, and 16-18

depend directly or indirectly upon Claims 1, 4, 8, 11, and 15, and given that claims that depend

on allowable claims are themselves allowable, Applicants respectfully request that these

rejections be withdrawn and that Claims 2, 3, 5-7, 9, 10, 12, 13, and 16-18 be allowed to issue.
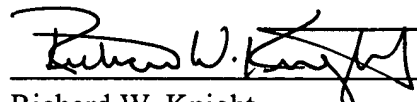
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CONCLUSION

Based on the reasons and rationale set forth herein, Applicants respectfully submit that

the objections and rejections have been overcome and, accordingly, Applicants request that the

objections and rejections be withdrawn and that the claims be allowed to issue. Should the

Examiner have any questions, comments, or suggestions that would expedite the prosecution of

the present case to allowance, Applicants' undersigned representative earnestly requests a

telephone conference at (206) 332-1394.

                                                    Respectfully submitted,

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